SPIRIT HE AAC Decoder

High Efficiency Advanced Audio Coding technology (also known as AAC+) was standardized as Part 3 of the MPEG-4 international standard. The Advanced Audio Coding in MPEG-4 Part 3 was enhanced relative to specifications of MPEG-2 Part 7 (AAC LC and Main profiles), in order to provide better sound quality in terms of the bit rate used for encoding. HE AAC v1 (or AAC+) technology combines Advanced Audio Coding (AAC) and Spectral Band Replication (SBR) algorithms. HE AAC technology can also be advanced to HE AAC v2 or eAAC+. This profile features Parametric Stereo (PS) technique. The codec can operate at very low bitrates and generally outperforms other popular codecs in the 32-64 Kbps range.

SPIRIT HE AAC Decoder is fully compliant to the MPEG-4 Part 3 standard. It implements all HE AAC features for embedded platforms. SPIRIT HE AAC Decoder has high decoding performance, lowering the final system cost and saving more CPU power and memory space.

Benefits
- Highly optimized code ideal for resource constrained applications
- Easy integration and fast time to market
- Allows to save several hours of SoC battery life

Key Features
- AAC HE v1 and v2 support
- Low CPU load
- Small memory footprint
- Simple API
- Fully compliant to the ISO MPEG standard

Applications
- Portable media players
- Set-top boxes
- Mobile phones
- Digital Radio Mondiale
- Car electronics

Availability
- TIC6xx Now
- ARM9E Now
- Tensilica HiFi2 Now
- MIPS Call
- TI OMAP Call
- AudioDE Call

Features
- High optimization
- Full compliance with MPEG-4 part 3 standard
- Support for AAC+v1 with high quality SBR mode
- Support for AAC+v2 with baseline PS mode
- Sampling rates from 8 to 96 kHz
- Bit rates from 8 to 576 Kbps for mono and from 16 to 1152 Kbps for stereo signal
- Support for LC profile
- Optional LD/LTP/SSR decoding tools support
- Simple API
Specifications
SPIRIT HE AAC codec is fully compliant to the MPEG-4 Part 3 (ISO/IEC 14496-3) international standard. TI C6xx version is eXpressDSP compliant. Code is reentrant, supports multithreading and dynamic memory allocation. At the same time allows direct (non-eXpressDSP) interface to enable static memory allocation.
SPIRIT HE AAC implements High-Quality SBR (HQ SBR) and baseline PS by default.

Optional features:
- Unrestricted PS

Resource Requirements

<table>
<thead>
<tr>
<th>PLATFORM</th>
<th>ARM9E</th>
<th>TI C6xx</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFILE</td>
<td>HE AAC v1</td>
<td>HE AAC v2</td>
</tr>
<tr>
<td>Peak MIPS*</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Average MIPS*</td>
<td>17</td>
<td>20</td>
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<tr>
<td>Program Memory, KB</td>
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<tr>
<td>Const Memory, KB</td>
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<tr>
<td>Persistent Memory, KB per channel</td>
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<td>20.5</td>
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<tr>
<td>Scratch Memory, KB</td>
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<tr>
<td>Stack, KB</td>
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</tbody>
</table>

* MIPS are measured for typical musical content, 48 kHz, stereo, using simulator with 0 WS for TI C6xx platform, MIPS figures correspond to MCPS

<table>
<thead>
<tr>
<th>PLATFORM</th>
<th>Tensilica HiFi2</th>
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<td>PROFILE</td>
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<td>Persistent Memory, KB per channel</td>
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<tr>
<td>Scratch Memory, KB</td>
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CONTACTS

Japan: +81-3-6361-8086   Taiwan: +886-2-2888-1010 ext. 100   Vietnam: +84-24-3772-7766

www.spiritdsp.com  sales@spiritdsp.com

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